

Application No. 09/160,157
Office Action: July 14, 2004
Response Dated: September 7, 2004

REMARKS

By this amendment, claim 81 has been amended to include recitation of source, drain and gate contacts, and to avoid possible interpretation that "within" could be limited to mean "wholly within". The amendment of claim 81 does not raise an issue of new matter, and is believed to place that claim clearly in order for allowance without raising any new issue requiring further consideration or search. Entry of amended claim 81 is respectfully requested. No claims have been cancelled and no new claims have been added. Claims 40, 41, 47, 60-65 and 76-84 are pending in this application for consideration.

The allowance of claims 40, 41, 47, 60-65, 79 and 80 is noted with appreciation. The Examiner's Reasons for Allowance do not appear to correlate directly with the combination of features as recited in any individual one of the independent claims. Applicant wishes respectfully to point out that in each of allowed independent claims 40, 62, 79 and 80 the recitations differ from one another and each of those claims is individually distinguished from and patentable over the prior art by reason of the combination of features set forth in that particular claim.

Claim Rejections:

Claims 76-78 and 84 were rejected under 35 US 103(a) as unpatentable over any one of the previously cited references Deal, Paivinen, Taguchi, or Cederbaum in view of Lisenker and Yoshitomi. In a telephone discussion with Examiner Perkins on July 20, 2004, the undersigned attorney questioned the rejection of claims 76-78, pointing out that arguments directed to claims 76-78 were included in the discussion between pages 8 and 12 of the Response filed March 27, 2004, which the Examiner found to be persuasive as to claims 40, 41, 47, 60-65 79 and 80. After consideration, the Examiner concurred and accordingly claims 76-78 remain pending in the application. The courtesy of the Examiner in clarifying this matter is appreciated. Withdrawal of the rejection of claims 76-78 and allowance of those claims is believed in order and is respectfully requested.

Claims 81 and 82 were rejected under 35 US 103(a) as unpatentable over Lisenker in view of Yoshitomi. In making this rejection, it is believed, with due consideration being given to the

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Wallace Declaration, the standards for establishing a prima facie case of obviousness under 35 US 103 have not been satisfied. The Examiner's attention is respectfully drawn to the discussion included in page 8 of the response filed on March 27, 2004, quoted below:

"... as studies subsequent to the filing date of the present application have shown, deuterium introduced by pre-metal annealing is prone to dissipation during subsequent thermal treatments. (Wallace Declaration Sections 13, 14, Exhibits A, B, C cited therein, and W.F. Clark et al., "Process Stability of Deuterium-Annealed MOSFET's", IEEE Electron Device Letters, Vol. 20, No. 1, pages 48-50, January 1999, Wallace Exhibit G.)

"While the presence of deuterium remaining in the gate insulator film is obtained from post-fabrication annealing disclosed in the present application, applicant is entitled to claim, as in claim 81, the resulting structure, including the structural feature "a concentration of deuterium introduced into and remaining within said film, ... said concentration of deuterium substantially reducing said degradation associated with said hot carrier stress" without recitation of the process parameters used. As discussed above, and addressed in subsequent discussion, deuterium introduced by pre-metal processing, as disclosed by Lisenker, would be dissipated by subsequent thermal treatments and consequently the resultant device would not include a remaining "concentration of deuterium substantially reducing said degradation associated with said hot carrier stress", as required by claim 81."

Consequently, the Wallace Declaration is believed to support the patentability of claim 81. Implementation of the teachings of Lisenker and Yoshitomi as urged by the Examiner would not have resulted in the structure set forth in claim 81 because after contact formation in Lisenker's device, all of the claim elements as recited in claim 81 ("a concentration of deuterium ... remaining within said film, ... said concentration of deuterium substantially reducing said degradation associated with said hot carrier stress.") would not have been obtained, so that the rejection fails to meet the requirements to establish a *prima facie* case of obviousness under 35 US 103 (see MPEP 2143.03). For clarification of scope, claim 81 has been amended to include the recitation "*said transistor device including source, drain and gate contacts, and a concentration of deuterium introduced into and remaining in said interposed gate insulator film,*" and the structure claimed in claim 81 is *per se* novel and not obvious in view of Lisenker and Yoshitomi and is patentable. The amendment of claim 81 does not raise an issue of new matter, and is believed to place that claim clearly in order for allowance without raising any new

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issue requiring further consideration or search. Entry of amended claim 81 together with allowance of claims 81-84 is therefore believed to be in order and is respectfully requested.

If there are any remaining issues that could be addressed by discussion to expedite further prosecution of the application to allowance, a telephone call to the undersigned attorney would be appreciated.

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Respectfully submitted,



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